AMENDMENT TO THE CLAIMS

1. (Currently amended) A method for fabricating a nonvolatile semiconductor memory device, comprising:

a first step of forming a gate structure on a semiconductor substrate, the gate structure comprising a tunnel insulation film being in contact with the semiconductor substrate, a floating gate electrode being in contact with the tunnel insulation film, a control gate electrode facing the floating gate with an intervening capacitive insulation film;

a second step of forming ion injection adjustment films comprising an insulation film being in contact with the floating gate electrode at least on side surfaces of the floating gate electrode;

a third step of injecting [[an]] impurity [[ion]] ions into an active [[regions]] region beside the gate structure in the semiconductor substrate by using the gate structure and [[the]] each ion injection adjustment film as masks, such that the impurity ions do not reach the lower portion of the side end of the floating gate electrode in the active region; and

a fourth step of thermally diffusing the injected impurity [[ion]] ions by performing heat treatment on the active [[regions]] region, such that the impurity ions reach the lower portion of the side end of the floating gate electrode in the active region;

wherein, in the second step, the film thickness of [[the]] each ion injection adjustment film is chosen so as to prevent the impurity [[ion]] ions from being injected into the tunnel insulation film and to allow the impurity [[ion]] ions to reach a portion below a side end portion of the floating gate electrode in the active [[regions]] region as a result of diffusive scattering and the thermal diffusion of the impurity [[ion]] ions into the semiconductor substrate.

2. (Original) The method for fabricating a nonvolatile semiconductor memory device according to claim 1, wherein the heat treatment of the fourth step is performed in an oxidizing ambient.

3. (Currently amended) The method for fabricating a nonvolatile semiconductor memory device according to claim 2, wherein [[the]] each ion injection adjustment film is composed of a material having oxygen permeability, and the fourth step includes a step of oxidizing an upper portion of the active region, and of oxidizing a part of the floating gate electrode by using oxygen transmitted through [[the]] each ion injection adjustment film.

4. (Original) The method for fabricating a nonvolatile semiconductor memory device according to claim 2, wherein the fourth step of performing the heat treatment is carried out at a temperature of about 850 degrees C or higher.

5. (Currently amended) The method for fabricating a nonvolatile semiconductor memory device according to claim 1, wherein the film thickness of [[the]] each ion injection adjustment film is about 50 nm or lower.

6. (Currently amended) The method for fabricating a nonvolatile semiconductor memory device according to claim 1, wherein the second step includes a step of depositing [[the]] each ion injection adjustment film on the entire surface of the semiconductor substrate including the gate structure and a step of exposing the active region by performing anisotropic etching on [[the]] each deposited ion injection adjustment film.

7. (Currently amended) The method for fabricating a nonvolatile semiconductor memory device according to claim 1, wherein the second step includes a step of forming [[the]] each ion injection adjustment film on the entire surface of the semiconductor substrate including the gate structure by using a thermal oxidation method, and a step of exposing an upper surface of the active region by performing anisotropic etching on [[the]] each formed ion injection adjustment film.

8. (Original) The method for fabricating a nonvolatile semiconductor memory device according to claim 1, wherein the third step includes a first ion injection step performed on the active region beside one side surface of the gate structure and a second ion injection step performed on the active region beside the other side surface of the gate structure.

9. (Original) The method for fabricating a nonvolatile semiconductor memory device according to claim 8, wherein the first ion injection step or the second ion injection step includes a step of injecting at least two types of impurity ions having an opposing conductivity type to the conductivity type of the semiconductor substrate.

10. (Withdrawn) The method for fabricating a nonvolatile semiconductor memory device according to claim 8, wherein the first ion injection step or the second ion injection step includes a step of injecting impurity ions having a same conductivity type as the conductivity type of the semiconductor substrate and impurity ions having a conductivity type opposite to the conductivity type of the semiconductor substrate.

11. (Currently amended) The method for fabricating a nonvolatile semiconductor memory device according to claim 1, wherein the second step includes a step of masking [[the]] each ion injection adjustment film on one side surface of the gate structure while exposing [[the]] each ion injection adjustment film on the other side surface of the gate structure, and a step of performing anisotropic etching [[the]] of each ion injection adjustment film being exposed on said other side surface of the gate structure.

12. (Currently amended) The method for fabricating a nonvolatile semiconductor memory device according to claim 11, wherein the second step includes a step of adjusting the film thickness of [[the]] each ion injection adjustment film by etching after anisotropic etching.

13. (Original) The method for fabricating a nonvolatile semiconductor memory device according to claim 1, wherein the first step includes a step of forming a protective insulation film on the control gate electrode.

14. (Currently amended) The method for fabricating a nonvolatile semiconductor memory device according to claim 1, wherein, after the fourth step, said method further includes a fifth step of forming insulative side wall spacers on the side surfaces of said gate structure with the ion injection adjustment films interposed therebetween, and a sixth step of injecting into the semiconductor substrate [[an]] impurity [[ion]] ions having a conduction type opposite to a conduction type of the semiconductor substrate by using the gate structure, the ion injection adjustment films and the insulative side wall spacers as masks.

15. (Currently amended) The method for fabricating a nonvolatile semiconductor memory device according to claim 1, wherein [[the]] each ion injection adjustment film is formed by silicon nitride in the second step.

16. (Currently amended) The method for fabricating a nonvolatile semiconductor memory device according to claim 1, wherein, the second step of forming [[the]] each ion injection adjustment film comprises a step of forming a first adjustment film comprising silicon oxide; and a step of forming a second adjustment film comprising silicon nitride on the first adjustment film.

17. (Original) The method for fabricating a nonvolatile semiconductor memory device according to claim 16, wherein the second step includes a step of removing a lower end portion of the second adjustment film after forming the second adjustment film.